

IN THE CLAIMS

1. (Currently Amended) A mixing device for mixing a first gaseous stream comprising a fuel and a second gaseous stream comprising an oxidant, which mixing device comprises: a cylindrical mixing chamber having a wall and a central longitudinal axis, ~~defined by a cylindrical wall having a diameter, an~~ a first injector for injecting the gaseous first stream comprising fuel tangentially along an inner surface of the wall of the ~~mixing chamber~~, and an a second injector for injecting a the second stream of the oxidant axially along a the central longitudinal axis of the mixing chamber, wherein the diameter of the mixing chamber, and dimensions and ~~location~~ locations of fuel ~~the first injector, for injecting fuel~~, and the second injector for injecting oxidant are such that, during normal operation, the ~~tangentially-injected first stream comprising the fuel~~ forms a wall jet around the axially injected second stream of the oxidant without impinging upon the ~~axially-injected second stream~~.
2. (Currently Amended) A ~~The~~ mixing device according to claim 1, wherein, during normal operation,
$$d_{ox} < d_{mix} - 3 \cdot d_{fuel}$$

wherein:
 d_{ox} is the diameter of the second stream of the oxidant at the point where the stream of ~~the oxidant~~ is injected;
 d_{mix} is the diameter of the mixing chamber; and
 d_{fuel} is the width of the first stream comprising the fuel in a perpendicular plane ~~wherein the stream comprising the fuel in which it is injected~~.
3. (Currently Amended) The mixing device according to claim 1, wherein the first injector for injecting the stream comprising the fuel ~~comprise~~ comprises at least two openings arranged in a perpendicular plane at regular intervals along the circumference of the cylindrical mixing chamber.
4. (Currently Amended) The mixing device according to claim 1, wherein the first injector for injecting the stream comprising the fuel ~~comprise~~ comprises two axially placed apart openings.
5. (Currently Amended) The mixing device according to claim ~~[[1]]~~ 2, wherein d_{fuel} is not greater than $0.33 d_{mix}$.

6. (Currently Amended) The mixing device according to claim [[1]] 2, wherein d_{mix} is at most 100mm.
7. (Currently Amended) ~~The~~ A reactor for the partial oxidation of a fuel comprising a mixing device and a partial oxidation reaction zone, wherein the mixing device comprises a cylindrical mixing chamber having a wall and a central longitudinal axis, ~~an a first injector for injecting a first gaseous stream comprising fuel, wherein the gaseous stream is injected tangentially along an inner surface of a the wall of the mixing chamber, and an oxidant a second injector for axially injecting a second stream comprising oxidant along the central longitudinal axis of the mixing chamber,~~ wherein said ~~mixing chamber has a~~ the diameter, and dimensions and ~~location~~ locations of the injectors are such that, during normal operation, the ~~tangentially injected first stream comprising the fuel forms a wall jet around the axially-injected second stream of the oxidant without impinging upon the axially-injected second stream.~~
8. (Currently Amended) The reactor according to claim 7, wherein the partial oxidation reaction zone comprises a catalyst, ~~comprises a cylindrical mixing chamber, an injector for injecting a gaseous stream comprising fuel, wherein the gaseous stream is injected tangentially along an inner surface of a wall of the mixing chamber, and an oxidant injector for axially injecting along the central longitudinal axis of the mixing chamber, wherein said mixing chamber has a diameter and dimensions and location of the injectors are such that, during normal operation, the tangentially injected stream comprising the fuel forms a wall jet around the axially-injected stream of the oxidant without impinging upon the axially-injected stream.~~
9. (Currently Amended) A process for the catalytic partial oxidation of a fuel, ~~comprising which process comprises~~ mixing a first gaseous stream comprising the fuel and a second gaseous stream comprising oxidant to obtain a feed mixture, and contacting the feed mixture with a catalyst, wherein the first gaseous stream comprising the fuel and the second stream gaseous oxidant are mixed in a mixing device comprising a cylindrical mixing chamber having a wall and a central longitudinal axis defined by a cylindrical wall having a diameter, an a first injector for injecting the first gaseous stream comprising the fuel tangentially along an inner surface of the wall of the mixing chamber, and an a second injector for injecting a the second stream of the oxidant axially along a the central longitudinal axis of the

~~mixing chamber~~, wherein the diameter of the mixing chamber, and the dimensions and location of the first injector for injecting the stream comprising the fuel and the second injector for injecting the oxidant are such that, during normal operation, the ~~tangentially injected first stream comprising the fuel~~ forms a wall jet around the ~~axially injected second stream of the oxidant~~ without impinging upon the ~~axially injected second stream~~.

10. (Currently Amended) The process according to claim 9 wherein the first gaseous stream comprising the fuel is a gaseous hydrocarbonaceous fuel.
11. (Currently Amended) The process according to claim 9, wherein the second gaseous oxidant stream is pure oxygen.
12. (Previously Presented) The process according to claim 9, wherein the feed mixture comprises the fuel and the oxidant in amounts giving an oxygen-to-carbon ratio of from between 0.3 to 0.8.
13. (Previously Presented) The process according to claim 9, wherein the feed mixture is contacted with the catalyst at a pressure in the range of from between 2 to between 150 bar.
14. (Previously Presented) The process according to claim 9, wherein the feed mixture is contacted with the catalyst at a gas hourly space velocity of from between 20,000 to between 100,000,000 Nl/kg/h.
15. (Previously Presented) The process according to claim 9, wherein the feed mixture is contacted with the catalyst at a temperature of from between 750 to between 1400 °C.
16. (Currently Amended) The mixing device according to claim 5, wherein d_{fuel} is not ~~granted~~ greater than $0.25 d_{mix}$.
17. (Original) The mixing device according to claim 6, wherein d_{mix} is at most 50mm.
18. (Original) The mixing device according to claim 6, wherein d_{mix} is at most 30mm.
19. (Currently Amended) The process according to claim 10, wherein the first gaseous stream comprising the fuel is comprises natural gas.
20. (Currently Amended) The process according to claim 10, wherein the first gaseous stream comprising the fuel is methane.
21. (Original) The process according to claim 12, wherein the feed mixture comprises the fuel and the oxidant in amounts giving an oxygen-to-carbon ratio of from between 0.45 to 0.75.

22. (Original) The process according to claim 13, wherein the feed mixture is contacted with the catalyst at a pressure in the range of from between 5 to 50 bar (absolute).
23. (Original) The process according to claim 14, wherein the feed mixture is contacted with the catalyst at a gas hourly space velocity of from between 50,000 to 50,000,000 NI/kg/h.
24. (Original) The process according to claim 14, wherein the feed mixture is contacted with the catalyst at a gas hourly space velocity of from between 500,000 to 30,000,000 NI/kg/h.
25. (Original) The process according to claim 15, wherein the feed mixture is contacted with the catalyst at a temperature of from between 850 to 1350 °C.
26. (Original) The process according to claim 15, wherein the feed mixture is contacted with the catalyst at a temperature of from between 900 to 1300 °C.